

NATURAL RESOURCES CONSERVATION SERVICE

CONSERVATION PRACTICE STANDARD

Wetland Wildlife Habitat Management

(Acre)

Code 644

DEFINITION

The retaining, creating, or managing of wetland habitat for wildlife.

PURPOSES

This practice may be applied as part of a wildlife management system to accomplish one or more of the following resource management objectives:

1. Maintain existing wetland habitat quality.
2. Create or restore wetland habitat.
3. Improve the existing quality of wetland habitat.
4. Provide fish and aquatic life support.
5. Provide educational aesthetic benefits.

CONDITIONS WHERE PRACTICE APPLIES

This practice applies on existing wetlands, or restored/created wetlands where water can be impounded or regulated by diking or flooding.

CRITERIA

Development and management options will be based on the use of the Wildlife Habitat Appraisal Guide. The appraisal guide will be used to determine the habitat quality for the wetlands(s) under management. The appraisal will consider the species of concern for the

appropriate period of the year based on the type of wetland developed and landowner's objectives.

The evaluation will result in a quality rating for the selected wetland species. This rating will consider the type, amount and distribution of habitat elements required on the Approval Worksheet.

1. If the habitat index indicates a rating below the minimum of 0.5, alternatives will be recommended that will result in the necessary changes in habitat elements or their management to bring the habitat index rating to 0.5 or above for the wildlife species of concern.
2. If the index rating is 0.5 or above, alternatives will be recommended that will result in the necessary management to maintain the existing habitat in its present state. The landowner will be informed of the opportunities to raise the quality of the habitat toward the highest rating of 1.0.

Criteria for Wetland Development

Water Supply. The quantity, quality, and availability of water should be evaluated to determine if wetland objectives can be met. Appropriate water depths should be available for effective wetland management. Well timed, gradual changes in water levels are effective approaches that provide ideal conditions for the production of desirable food and forage depths.

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

A dependable water source will allow the resource manager the ability to manipulate the wetland habitat present to ensure optimal resource production and effective wetland utilization by waterfowl, shorebirds, and other wildlife.

Dependable gravity flow water sources include upland runoff, storage reservoirs, floodwaters, and spring. Pumping water from streams, rivers or ponds is a viable alternative; however, long term pumping and maintenance costs should be considered with this method. The water source should be sufficient to flood 1/3 to 1/2 of the project area in 1 week.

The source of water for seasonal or temporally flooded wetlands must be dependable and should emulate as much as possible the natural flooding conditions of the project site. The ideal water source should provide between 2 and 10 inches of water but no more than 18 inches across the entire wetland (excluding old channels and other depressions) in the required time interval of one week.

Water Control Structures. Proper water management includes the ability to manipulate hydrology in the wetland. This, in turn, provides the manager with the ability to produce a variety of foods, make those foods available, control plant succession, and change the habitat in a wetland.

Various types of water control structures are available and should be selected based on the type of wetland developed and the level of management that is anticipated. Structures will conform to applicable NRCS Practice Standards- Structure for Water Control (587), Pond (378), and Dike (356) and should include a provision for drainage of the wetland site.

Water level manipulation should accomplish the following functions:

1. Provide diverse water depths to create a variety of vegetation in areas of open water.
2. Controls plant success and alter vegetation type by flooding during the growing season.

3. Increase production of natural plant foods by the use of summer drawdowns.
4. Provide mudflat areas for use by shorebirds and seeding of foods.
5. Provide for winter and summer drawdowns to control muskrat populations. This will prevent damage to dikes.
6. Control carp reproduction by lowering water after spawning.

To provide the above functions the water control structure should meet the following criteria:

1. Be sized to accomplish the objective for the wetland and offer sufficient drainage to maintain vegetation within the wetland.
2. Provide automatic removal of excess rainfall and maintain the designed water elevation.

For more information on structures, see Chapters 6 and 13 of the Engineering Field Handbook (EFH) along with Natural Resources Conservation Service (NRCS) practice standards (587) Structure for Water Control and (378) Pond.

Permanently Impounded Wetlands Development Criteria

These permanent wetlands are designed to provide wetland wildlife habitat on a year-round basis. This type of development is intended to supply food, escape cover, brood rearing cover, and other habitat requirements.

Waterfowl Development Criteria

The following items will be designed when waterfowl use of the wetland is planned:

1. The impounded area will be at least 1 acre in size.
2. The area disturbed during construction will be vegetated to provide stability and to reduce erosion by use of practice standard

(645) Wildlife Upland Habitat Management for recommended species.

3. Livestock will be excluded from the impoundment with an ungrazed band between 50 feet and 100 feet wide established around the circumference of the wetland to create a protected edge area for nesting and feeding.
4. At least 20 percent of the pool area at the design level will have a minimum water depth of 3 ½ feet to 5 feet to retard excessive growth of aquatic emergent plants and help to assure permanent water.
5. Approximately 50% of the pool area will have water less than 18 inches deep.
6. The water control structure should be a size to pass normal summer flow of water through the ponded areas.
7. Construction will be in accordance with applicable engineering standards and specifications.

The wetland functions/values in a permanent wetland are served best with an interspersed of 50% open water and 50% emergent cover. An adequate water control structure is essential to control water levels. Water level manipulation is a tool used in vegetation selection and control and for partial drainage to expose mudflats for food plot establishment.

Furbearer Developments Criteria

Wetlands provide habitat at various life stages for furbearers such as beaver, muskrat, mink, river otter, and raccoon. Permanent water is essential to furbearers as many furbearers use dry banks for denning and will be attracted to water.

Permanent water is also critical in providing habitat for crustaceans, mollusks, and other food organism as well as in providing critical aquatic habitat areas for the furbearers.

A water control structure is necessary for best management of an impoundment for furbearers

as muskrat damage to dikes can be controlled through winter drawdown to aid in trapping.

The following items will be designed when furbearer use of the wetland is planned:

1. The water level should be maintained at 6 to 12 inches during the growing season to encourage cattail, bulrush, bur reed, arrowhead, and other important muskrat food plants.
2. The wetland area can be flooded in the fall, but large fluctuations in water level are detrimental to muskrats because it floods their dens.
3. The water control structure should be of a size to pass normal flow of water through the ponded area.
4. If water control is not possible the pool area should be at least 20 percent with a minimum of 3 ½ feet to 5 feet water depth at design level.
5. Areas disturbed during construction will be vegetated to provide stability and to reduce erosion by use of practice standard (645) Wildlife Upland Habitat Management for recommended species.
6. Construction will be in accordance with applicable engineering standards and specifications.

Non-game Developments Criteria

Non-game wildlife will use almost all wetlands regardless of the wetland's intended use or management scheme; however, their numbers can be increased by managing for a diversity of water depths and vegetation.

A mix of open water, dense vegetation, and mudflats will attract the greatest diversity of non-game birds and other animals. In the fall early migrating shore birds are particularly attracted to shallow flooded (1 to 2 inches) mudflats.

Wetland areas designed specifically for non-game will have the following features:

1. Water depths will be 10 inches or less.
2. Water control will allow periodic drying of the pool area during summer to produce diverse foods and vegetation.
3. The water control structure should be of a size to pass normal summer flow of water through the ponded areas.
4. Areas disturbed during construction will be vegetated to provide stability and to reduce erosion by use of practice standard (645) Wildlife Upland Habitat Management for recommended species.
5. The area will be disked or burned every third year to prevent vegetation from becoming matted.
6. Construction will be in accordance with applicable engineering standards and specifications.

Another type of non-game wetland is a small fishless pond. These serve as essential breeding areas for amphibians. These ponds should maintain water throughout the year and are most attractive if partially submerged brush and logs are provided along the edge of the pond. The criteria for water depths under the above "waterfowl developments" will provide adequate water depths and amounts.

Reptiles also thrive in wetlands with diverse water depths and vegetation. It should be noted that reptiles and amphibians are very sensitive to pesticides. Extreme care should be taken to prevent contamination of the wetland.

Seasonally Flooded Wetlands Development Criteria

These wetlands attract migrating birds and other wildlife species that need wetland habitats at specific times of the year. Seasonally flooded wetlands provide spring habitat that is particularly important to waterfowl.

Furbearers are incidental users of seasonally flooded wetlands for water supply and as a food source. The lack of permanent water usually precludes year round use by muskrat, beaver, and other den building mammals.

Fall flooding of an annual grain crop, harvested field, or natural vegetation, will attract waterfowl. Also, proximity to a permanent water body, length of time the field is flooded, and the robustness of the vegetation present will determine which wildlife species use these areas and how much use they receive.

Shallow water depth (2 to 8 inches) is especially important during spring migration as it provides critical habitat for invertebrates. These invertebrates are important foods for migrating birds.

For waterfowl hunting, impoundments will be flooded by the beginning of the hunting season and remain flooded until mid-spring. Shallowly flooded crop fields may be drained in time to allow normal agricultural seedbed preparation.

Crop fields and/or Other Wetlands Criteria

The following items will be considered in planning seasonally flooded crop fields and/or wetlands:

1. Surrounding shoreline and upland areas should not be grazed, mowed, or burned unless recommended in the wetland management plan because these areas provide nesting and feeding cover.
2. Seasonally flooded fields should be at least 1 acre in size.
3. Water control will allow for water depth from 6 to 18 inches.
4. The levee or dike will be used as access for hunting or management activities.
5. Areas disturbed during construction will be vegetated to provide stability and to reduce erosion by use of practice standard (645)

Wildlife Upland Habitat Management for recommended species.

6. The water control structure should be of a size to pass normal summer flow of water through the ponded areas.
7. The water control structure will have the capacity to drain the site at maximum design capacity within one week in case of heavy rainfall.
8. Construction will be in accordance with applicable engineering standards and specifications.

Seasonally flooded fields can be seeded to the following plant species:

1. Japanese Millet. This plant is one of the best food plants to use in shallow field developments. This annual is a high seed producer, extremely tolerant of flooding, can germinate in 4 to 6 days and mature in 60 to 75 days. Seed at a rate of 15 to 20 pounds per acre. Seed may either be broadcast or drilled. Broadcasting on very wet mudflats can be very effective.
2. Corn and grain sorghum. Corn is an important preferred food for many waterfowl in late winter. Corn is a high-energy food that is needed by birds to maintain their body temperatures. Although corn seems to be preferred, grain sorghum may be used and can be quite effective in some situations where corn may be difficult to grow.

Green Tree Reservoirs Criteria

These are flat, bottom land hardwood areas, shallowly flooded (1 to 18 inches) during the trees' dormant season (October through February.) The most producing trees attract feeding waterfowl. Properly developed and managed, these areas will provide food for ducks and other wildlife, increase mast yields, increase the percentage yield of viable acorns, and increase timber growth.

An adequate water control structure is a necessity. Green tree reservoirs should not be flooded during the growing season. This will maintain longevity and productivity of the trees. Flooding too early in the fall, before leaf fall is detrimental to good tree growth and may cause tree mortality.

An open marsh or shallow field development is an ideal supplement to a green tree reservoir. This will add habitat diversity.

The following items will be planned in developing green tree reservoirs:

1. Flood only in dormant season (after leaf drop in the fall and before the trees bud out in the spring).
2. Vary flooding dates, depths and duration from year-to-year to assure longevity and productivity of the trees.
3. Borrow areas from dike construction will be located to avoid reduction of forested area and to minimize creation of deep-water hazards.
4. Existing openings within the woodland area will be allowed to reforest naturally or may be maintained in annuals through periodic cultivation.
5. Selective cutting (TSI) will be used to provide more room for tree growth of productive tree species.
6. The levee or dike will be used as access for hunting or management activities.
7. Areas disturbed during construction will be vegetated to provide stability and to reduce erosion by use of practice standard (645) Wildlife Upland Habitat Management for recommended species.
8. The water control structures should be of a size to pass normal summer flow of water through the ponded areas.

9. The water control structure will have the capacity to drain the site at maximum design capacity within one week in case of heavy rainfall.
10. Construction will be in accordance with applicable engineering standards and specifications.

Details on vegetation species selection and planting techniques can be found in practice standard (612) Tree/Shrub Establishment. Choose appropriate species such as Pin Oak, Swamp White Oak, and Silver Maple for producing fruit attractive to waterfowl (acorns, maple seeds, etc.). Plantings can provide late winter foods, provide a diversity of foods and help control undesirable plants.

CONSIDERATIONS

Wetland Functions/Values

Many game and non-game mammals, birds, fish amphibians, reptiles, insects, crustaceans, and mollusk species use wetlands to meet essential habitat needs. Many other animals use wetlands for some of their life requisites but are not commonly thought of as wetland residents.

Wetlands have many roles in addition to providing wildlife habitat. Other roles include flood storage, groundwater recharge, and water quality improvement.

Wetlands improve water quality by filtering and settling sediment and sediment-attached nutrients and pesticides and by slowing water flows so that nutrients can be taken up by plants or used by microorganisms. Because wetlands are located on slowly permeable to impermeable soils, dissolved substances move very slowly, if at all to groundwater. This may prevent pollutants, such as nutrients and pesticides, from reaching the groundwater.

Wetlands can also concentrate sediment-attached nutrients and pesticides. Effects of this concentration range from choking the wetland with nutrients, sediments, and vegetation, to toxicity for wildlife species. Because of these

effects, proper land management above the wetland is critical.

Protection

Protection of existing wetland habitat includes protecting wetlands from further degradation, retaining wetland habitat by limiting agronomic, forestry, or animal husbandry uses, and applying proper management and maintenance techniques. The following items should be given consideration in any wetland management plan:

1. Permanent drainage of these specialized areas should be avoided.
2. Designate these areas as wildlife land on the conservation plan land use map and record the management measures necessary to preserve the wetland site.
3. List the FSA wetland type.
4. Refer to the CRITERIA section of this standard for allowable uses of the site.

Other Management Options

Aquatic plants are divided into three broad groups, (1) submerged, (2) floating, and (3) emergent, based on growth habits. They provide varying degrees of importance to wetland wildlife. Some provide food, some brood and escape cover, some are used for nesting and den building, and some tend to attract insects, which are important in the diet of ducklings.

The most important group of these natural plants is termed "moist soil plants" because they germinate and thrive in moist soil conditions. Preferred moist soil plants include wild millet, annual smartweed, rice cutgrass, barnyard grass and some sedge. These plants are extremely nutritious and provide essential foods for waterfowl.

Moist soil plants need not be planted. Proper water level management and periodic disking every one to three years or other soil disturbances can propagate them very easily.

Islands, loafing sites and nest structures can be incorporated in wetland projects to provide diversity of water depths and nesting sites. A

50-foot wide, three-foot-deep moat should separate the island or loafing site from the shoreline to prevent predators from swimming to the site.

Islands are ideal locations for placement of nesting tubs. Resident Canada geese nest readily in washtubs or barrels on poles above the water. These nests can be used to increase the goose population in a given area.

Wood ducks will also nest in artificial nest boxes if natural tree cavities are lacking. Floating logs or rafts, bales of hay or straw, or rocks piled in shallow water will be used as loafing sites by waterfowl.

Geese are grazers and obtain their food by browsing on fresh green shoots of grass and other plants near water. Periodic mowing near the water's edge will provide feeding areas. Bluegrass and legumes (clovers and alfalfa) are probably the preferred browse for Canada geese during the summer.

A refuge area is a site free from disturbance. This can be an important management tool if the wetland is located far from other public or private wetland refuges.

Refuges should be managed as intensively as hunting areas because refuges often hold large numbers of waterfowl for extended lengths of time. Having adequate food sources is very important in holding birds throughout the hunting season. The size of the refuge will depend on several specific site characteristics but regardless of size, it should be inviolate.

If more than one impoundment is available, use one as a refuge. Where only one is available, hunting can be improved by limiting the hunting to about three or four hours a day, or to three days a week, or to confine hunting to pass shooting well away from the water.

PLANS AND SPECIFICATIONS

Plans and specifications shall be developed for the specific field site.

Plans and specifications shall be prepared in accordance with the criteria of the standard and shall describe the requirements for applying the practice to achieve its intended use. Plans and specifications include engineering plans, job sheets, technical guides, and narrative statements in conservation plans, or formats similar to NEH-20, etc. Other national standards should be referenced in the plans and specifications when appropriate (i.e. Conservation Cover, Field Borders and Tree/Shrub Establishment).

OPERATION AND MAINTENANCE

An operation and maintenance plan shall be developed that is consistent with the purposes of the practice, its intended life, and criteria for its design. Appropriate NRCS practice standards will be used in developing the maintenance plan.

Develop a Mowing Plan – Do Not Mow unless needed. Restrict annual mowing to not more than 1/3 in any year.

Control noxious weeds with spot treatment.

When using chemicals recommended by Purdue University, follow labels and laws. Refer to both the "Monitoring" and the "Management" section of EFH - Chapter 13.

REFERENCES

1. Wetland Policy found in General Manual, Title 190, Ecological Sciences, Part 410, Subpart B, Related Environmental Concerns, Section 410.26, Protection of Wetlands, pp. 410-39-310-43.
2. Federal Manual for Identifying and Delineating Jurisdictional Wetlands.
3. Biology Job Sheets #5,6,7,8,9,10,11, and 13.
4. 4. Russel E. Mumford and John O. Whitaker, Jr., Mammals of Indiana – IU Press.